



The Week In Summary

[1] NW Power Prices Soar With Pinched Supplies and Low Temperatures

Cold temperatures and a tight energy supply pushed power prices in the region on March 1 to levels that haven't been seen since the California energy crisis. For the first time since 2000, prices at Mid-C hit \$1,000 per MWh, before leveling out around \$800. Natural gas prices also set a single trade record and new high, as utilities fired up natural gas-fired power plants. *At [11], region leans on natural gas during extreme weather.*

[2] Avangrid Planning 150-MW Lund Hill Solar Project in Washington

Avangrid Renewables plans to build the 150-MW Lund Hill solar photovoltaic project 8 miles southeast of Bickleton, Wash., in Klickitat County, which is expected to enter service in 2020. Most of its 1,700 acres will be on private land, but 480 acres are state trust lands that will generate lease payments of over \$120,000 per year for 40 years for a school construction fund. Avangrid declined to identify the customer for the solar output. *The race is on for the state's largest solar development, at [12].*

[3] Cryptocurrency Development Throws Lifeline to Hardin Coal Plant

One of Montana's newest industries—cryptocurrency mining—is breathing new life into the Hardin Generating Station. The coal-fired power plant had faced closure until just a few months ago. *A new owner for the plant and a \$92-million cryptocurrency mining development have brought a reprieve for Hardin, at [13].*

[4] Ecology Not Ceding Water Quality, Temperature Authority Over Dams

After withdrawing its initial request for state water quality certification at nine federal dams on the Snake and Columbia rivers last month, EPA is working on a new request, exchanges between the federal agency and Washington's Department of Ecology indicate. Ecology says it's ready to evaluate the new applications, and is prepared to either issue or deny the certifications. The state oversight was triggered by a court settlement in which the U.S. Army Corps of Engineers agreed to seek a pollution discharge permit from EPA. *At [15], most public comments ask Washington to retain its authority and require federal dams to adhere to state water temperature standards.*

[5] Tribes Helping Repeat Spawners to Boost Idaho's Famous B-Run

With successful steelhead kelt reconditioning programs underway in several Columbia River tributaries, the Columbia River Inter-Tribal Fish Commission is now ready to move forward with a full-fledged

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program in the Snake River, where B-run steelhead have suffered from low returns in recent years. The program's goal is to increase the number of these repeat spawners crossing Lower Granite Dam by 6 percent. *At [16], the tribes say this recovery tool, with BPA's support, could become more important in runs with poor returns.*

[6] Safety Concern Went Unheeded Before Fatal Accident at Chelan PUD

A worker raised concern in the 1990s about the safety of a lifting mechanism at Chelan County PUD's Rock Island Dam, but it had been long forgotten when a 40-year-old employee was killed by a falling 1,900-pound metal rail in June. Independent investigators found a design weakness to be the root cause of the accident. *At [14], a PUD spokeswoman says the district is committed to implementing all recommendations from the report.*

[7] NW Natural Reports Flat Adjusted Net Earnings in 2018

NW Natural Holdings on March 1 reported flat net earnings of \$2.24 per share, comparing 2018 and adjusted 2017 results. The adjustment reflects the 2017 impairment of the Gill Ranch gas storage facility, partially offset by a benefit from the implementation of federal tax reform legislation. *At [17], North Mist expansion expected to go on line in spring, and NW Natural's water utility unit continues to grow.*

[8] POTOMAC: Proposed Offshore Leasing Plan Due in 'Weeks'

A proposed 2019-2024 offshore oil and natural gas leasing program is likely to be released for public comment "in the coming weeks," the Bureau of Ocean Energy Management's acting chief told a House subcommittee on March 6. Meanwhile, House Democrats at a subcommittee hearing spotlighted the Department of Energy's missed deadlines for updating appliance efficiency standards. *Faster action urged to harden grid against electromagnetic pulse and geomagnetic disturbance risks, at [18].*

Briefs

[9] PPC Executive Director Corwin Leaving to Lead NWPPA

Scott Corwin is leaving the Public Power Council after 12 years as executive director to lead the Northwest Public Power Association, effective at the end of April.

Corwin will step in as current Executive Director Anita Decker retires after five years with NWPPA and over 39 years of experience in the industry.

"It has been an honor and great pleasure to work for the members of PPC for the last 12 years," Corwin said in a statement. "As I take on this new role for public power utilities, it is reassuring to know that PPC is positioned so well for the future with a very strong board and top-notch staff."

During his time at PPC, Corwin helped develop unified positions on public power's interests in securing reliable and economical power supply options from BPA. He was at the helm as PPC pushed BPA to chart a new course toward a more competitive future, while also fending off proposals to privatize BPA's transmission system and helping position the agency for negotiations with Canada for a more equitable agreement under the Columbia River Treaty.

Prior to joining PPC, Corwin was a vice president at Pacific Northwest Generating Cooperative. Previously, he worked for Portland General Electric, the Speaker's Office of the Oregon House of Representatives, and in various positions with the United States Senate in Washington, D.C., including legal counsel to Sen. Mark Hatfield.

"We thank Scott for his dedicated service to the region's consumer-owned utilities," Debra Smith, PPC executive committee chair, and CEO and general manager of Seattle City Light, said in a statement.

"We were fortunate to have Scott leading public power during this transformational time in the industry and are pleased that the region will continue to benefit from his expertise and leadership in his new role." *[Steve Ernst]*

[9.1] Idaho Governor Appoints Jeffery Allen to Northwest Power and Conservation Council

Idaho Gov. Brad Little on March 4 appointed Jeffery Allen to serve as one of the state's two members on the Northwest Power and Conservation Council.

He replaces Bill Booth, who retired in December after 12 years (CU No. 1881 [10]).

Allen has been the Council's Idaho office director and policy analyst since 2008. He previously worked in the governor's Office of Species Conservation, where he advised the state on policies relating to the Endangered Species Act, and led the state's effort to delist gray wolves and establish a compensation fund for livestock killed by wolves. Before that, he was director of natural resources for U.S. Senator Mike Crapo.

"Jeff's deep knowledge of natural resources along with his extensive network of regional relationships make him an asset to Idaho on the Council," Little said in a statement. "I am confident Jeff will work well with our regional partners to protect and promote Idaho's interests and natural resource-based economies in his new role."

The Council is made up of two members each from Washington, Oregon, Idaho and Montana. The governor of each state appoints the members from their state to a three-year term, which can be extended. Allen joins Jim Yost as the other Idaho representative.

Council Chair Jennifer Anders will decide whether Allen will take over for Booth to serve on the Council's Fish and Wildlife Committee, and as chair of the Council's Public Affairs Committee.

Washington Gov. Jay Inslee has not yet announced a replacement for Council Member Tom Karier, who also retired from the Council in December and who has continued to attend meetings by phone until his replacement is found. *[K.C. M.]*

[9.2] Water Supply: Wet Snake River Basin Offsets Dry Upper Columbia

February's snowstorms in the lower Columbia Basin—especially in the Snake River and eastern Oregon, where some locations now have more than twice the average snowpack—more than made up for a poor snowpack from October through January.

But the month wasn't as generous in the mountainous upper Columbia. Add that to predictions of below-normal precipitation over the next 10 days and forecasters say the summer water supply at The Dalles Dam will be about 87 percent of the 30-year average.

"These increases for the Snake were countered by these slight decreases in the upper Columbia, and the net effect was little change in the April-to-September volume at The Dalles," Ryan Lucas, hydrometeorologist at the Northwest River Forecast Center, said during a March 7 webinar.

The outlook also puts this summer's water supply at 87 percent of normal at Grand Coulee Dam, down from 89 percent of normal at the beginning of February. But the forecast improved at Lower Granite Dam, going from 86 percent of normal in early February to 95 percent of normal on March 6, Lucas noted.

The low snowpack in the upper Columbia, along with the unseasonably cold weather, is causing concerns for salmon managers and hydropower producers. Significantly colder-than-average temperatures have kept the snowpack solid into March. The cold weather, low flows for hydropower production and high natural gas prices prompted BPA to ask customers on March 1 to reduce energy use when possible to relieve stress on the power system.

At its March 6 meeting, the Columbia River Technical Management Team discussed the possibility of "abandoning" extra flows to help chum below Bonneville Dam, due to the rapid decline of water behind Grand Coulee Dam, which is being drawn down to provide water for the chum and for fish in the Hanford Reach. TMT members were hoping for extra flows from low-elevation snowmelt, but cold weather is preventing that.

"I do think we're at a point where we can't continue to keep kicking this can down the road," said Joel Fenolio, BuRec's TMT member.

Fenolio noted that the reservoir is nine feet lower than it was in 2013, the last time the TMT members decided to stop providing extra flows for chum.

The team opted instead to keep releasing water, at least until March 11, and revisit the issue then. *[K.C. M.]*

[9.3] Washington UTC OKs Sale of Non-Controlling Interest in PSE Parent Puget Holdings

The Washington UTC on March 7 approved the transfer of a 43.99 percent non-controlling interest in Puget Sound Energy parent Puget Holdings to a group of four investment firms.

One of the firms is Dutch, PGGM Vermogensbeheer B.V.; and the other three are Canadian—Alberta Investment Management Corp., British Columbia Investment Management Corp. and OMERS Administration Corp.

Alberta Investment and British Columbia Investment Management are existing owners, and OMERS and

PGGM Vermogensbeheer are new investors.

The interest is currently held by Macquarie Infrastructure Partners and Macquarie-owned Padua MG Holdings, companies that helped craft the 2009 sale of the company. They initiated the sale of their shares in August (CU No. 1863 [13]).

PSE, with the four purchasing parties, filed a joint application with the commission in September for the proposed sale and reached a joint settlement with stakeholders, submitted to WUTC on Jan. 15.

The Washington and Northern Idaho District Council of Laborers, the International Brotherhood of Electrical Workers, and Local 32 opposed the settlement. Joining PSE were commission staff, the Public Counsel Unit of the Attorney General's Office, the Alliance of Western Energy Consumers, The Energy Project and NW Energy Coalition.

The settlement addressed corporate governance, ring-fencing and financial issues, as well as community and low-income customer matters, among 65 total provisions.

The March 5 order approving the transfer, which followed a Feb. 15 public hearing, found that it would result in no harm to PSE customers and is in the public interest, as required by state law. *[R. A.]*

[9.4] Oregon PUC Approves Portland General Electric's Voluntary Renewable Energy Tariff

The Oregon PUC on March 5 approved Portland General Electric's voluntary renewable energy tariff (VRET) that will allow the company to acquire renewable energy for the utility's large commercial and industrial customers with loads over 10 aMW.

The newly approved VRET will allow PGE to procure up to 300 MW of new renewable energy, including 100 MW from a competitive request for proposals for power purchase agreements.

PGE requested the voluntary "Green Tariff" in an April 13 [filing](#) that sprouted from nearly two years of discussions with OPUC after the passage of House Bill 4126 in 2014 (CU No 1847 [16]).

The legislation directed the commission to examine the likely effects of utility VRETs and determine whether such tariffs would be reasonable and in the public interest *[UM 1690]*.

PacifiCorp and PGE both balked at filing a VRET at the time, until PGE's April 2018 proposal, which the utility described as a "pilot program." However, the commission begged to disagree.

"We do not consider it accurate to describe PGE's proposal as a 'pilot,'" the commission [wrote](#) in its order. "PGE may procure up to 300 MW of new nameplate resources through PPAs under this program. Under our competitive bidding rules, for example, such a procurement would qualify as a major resource. Instead of a pilot, we recognize this program as the first phase of a VRET offering, which may be followed by a second phase following the continuation of this proceeding."

In PGE's VRET model, the utility will acquire new renewable supply through a PPA. Participating customers pay all cost-of-service rates, and are charged a subscription based on PPA costs and the cost of a risk adjustment. Participating customers receive credits for energy and capacity provided by the PPA projects.

OPUC also directed PGE to propose a schedule for a second phase of the proceeding that will examine credit calculations; reassess previously adopted conditions; evaluate VRET interactions with Oregon's direct access program; look at participation limitations of any "bring-your-own" PPA programs (customer-supplied resources), and other policy issues identified by parties during the investigation.

"We approve PGE's proposal both to set the Customer Supply Option participation limit at 10 aMW, and PGE's proposal review and amend all contract terms," the order said.

"That noted, we require that PGE develop and publish minimum PPA standards so that customers may access clear information about PPA requirements, so that all eligible customers will have non-discriminatory access to [the] Customer Supply Option." *[S. E.]*

[9.5] Montana PSC Trims NorthWestern Energy's Interim Rate Request

The Montana PSC on March 4 [approved](#) NorthWestern Energy's request for an interim rate adjustment while regulators consider the utility's general rate case, but trimmed it from a \$13.8-million revenue increase to \$10.5 million *[D2018.2.12]*.

The utility's requested revenue bump was based on a return on equity of 10.06 percent, the weighted average of the last five ROEs approved for NorthWestern by the commission. But a PSC staff analysis recommended commissioners use the most recent ROE approved, 9.8 percent, as it "better reflects current market conditions," which the commission unanimously approved.

While lower than NorthWestern Energy's request, the ROE is still higher than the 8.75 percent value suggested by the Montana Consumer Counsel and the 9.35 percent recommended by the Montana Large Customer Group.

The PSC order also limits NWE to raising revenue only by increasing electric delivery service rates. The utility had proposed raising electric delivery service rates by 11.04 percent, increasing revenue by \$29.1 million; and decreasing electric generation service rates by 5.84 percent, dropping revenue by \$15.2 million. *[D. C.]*

[9.6] Slices! Slices Here! Get Your Slice From Chelan County PUD

Bids are [due](#) March 26 for Chelan County PUD's latest auction of up to 5 percent of the output from its Rocky Reach and Rock Island hydroelectric projects, for either a 2.5-percent slice or for the entire 5-percent slice.

Bidders will be notified of the outcome within 90 minutes. The necessary contracts will be formalized by March 28, according to the timeline on Chelan PUD's website.

The output includes energy, capacity and storage from the dams. For a 2.5-percent slice of an average water year, that would be 26 aMW of energy, 46 MW of capacity and 98 MWh of pond storage. A 5-percent slice would be 52 aMW of energy, 92 MW of capacity and 195 MWh of pond storage.

The contract duration on offer is from January 2020 through December 2024, and the delivery point would be from the Mid-Columbia.

Chelan PUD is also offering the slice product with environmental attributes, on a negotiated basis. However, the utility notes in its material on the auction that it cannot guarantee that the product will comply with compulsory or voluntary renewable portfolio programs.

The utility began auctioning slices in 2010. It did not hold an auction in 2018, opting instead to negotiate two competitive contracts—a five-year deal with Avangrid Renewables and a 10-year deal with Avista.

Typically, Chelan PUD sells about 25 percent of output from Rocky Reach and Rock Island dams through slice contracts. If the upcoming bid is successful, the PUD will have 25 percent under slice contract through 2020. *[D. C.]*

[9.7] Brief Mentions: News Roundup

Gov. Jay Inslee's Southern Resident Orca Task Force will hold a public meeting from 9 a.m. to 4:30 p.m. on March 18 at the community center in Lacey, and will broadcast it on Washington's public affairs network [TVW](#). The center's systems may not support live-streaming, but the meeting will be available later in TVW's archives. An agenda will be posted on the task force's [website](#) when available.

The Washington Fish and Wildlife Commission decided March 2 to allow gillnets on the lower Columbia River's mainstem this fall while state fish managers work with Oregon to develop a long-term policy for shared waters. The commission's 5-1 vote extends gillnet fishing under similar rules as 2018. The commission also made the use of barbless hooks in the Columbia River voluntary. Washington was working to phase out gillnets, but alternative gear and off-channel options have not been successful. Washington is now working to ensure compatible fishing rules on the Columbia River with Oregon, which also plans to allow gillnets this fall.

REC Silicon has opted to keep its Moses Lake, Wash., production facility operating rather than impose the two-month shutdown it contemplated in February, the company said March 5. The board of directors considered the hiatus because the ongoing solar-panel trade war with China had not improved (CU No. 1889 [16]). Solar panels using polysilicon from the Moses Lake plant are overwhelmingly made in China, which in 2013 imposed a high tariff on U.S.-made polysilicon in a trade dispute. The board tabled the work pause "until further notice" in the face of positive news from recent trade negotiations, and said it was awaiting "further clarity" on whether this would result in REC regaining access to China's market, and on the overall outlook for the polysilicon market. *[C. U.]*

[9.8] CORRECTION: New PGE Rates Went Into Effect in Jan. 2019

A story in CU No. 1980 [7.2] gave the incorrect date for the timing of the settlement in Portland General Electric's rate case. The rate case was resolved with a settlement in September 2018, the Oregon PUC approved the settlement in December 2018, and the rates went into effect in January 2019. We regret any confusion this may have caused. *[C. U.]*

Opinion & Perspectives



Bearing Down

[10] The News From Out There That Could Make Headlines Here

SUMMARY: Three news stories with pertinence to the Northwest's utility-and-energy scene—Vermont looks to rent electrical storage capacity from residential customers with home battery systems; Virginia tells Walmart “no” to bid to do its own electricity shopping; and Warren Buffett on why he’s not making big-ticket purchases.

While the intrepid staffers of Clearing Up hack through the tangle of issues and organizations to get a clearer view of what’s going on in the utility and energy sector in the West, those of us in the punditry class like to climb up in the ivory tower, peer over the mountains (they’re very tall towers) and see what’s going on elsewhere that might be of relevance, today or soon, here. Following are some examples.

Practical, reliable and affordable battery storage technology increasingly feels like the missing link to making the smart grid possible and attractive to consumers.

Green Mountain Power and Renewable Energy Vermont are teaming up on a promotion to see if more consumers can be spurred to make the investment.

Called Bring Your Own Device, the program offers immediate payments or ongoing bill credits to those who allow the utility to connect home batteries to a 10-year peak-shaving program. Battery power has to be available “for a minimum duration of three hours at the full capacity of your battery’s rating. You must make at least 2 kW available; GMP will not use more than 10 kW from an individual meter.”

In exchange, the incentives include \$850 per kW of energy storage enrolled, with an extra \$150/kW incentive for those adding batteries to existing solar systems in regions the utility thinks need reinforcing.

There are also incentives for those who enroll electric vehicle chargers in the program. The utility contends the incentives will pay for themselves through the savings it will reap by not having to buy or build for those peak moments.

Green Mountain says peaks typically occur five to eight times a month, lasting three to six hours each. Customers will get an alert that the utility will be borrowing some stored power at least four hours in advance. “We take steps to make sure you have the reliability you need,” the utility advises. “If a weather event is expected to bring outages to your area, we make adjustments so your battery will have stored energy.”

Green Mountain Power isn’t a big utility—265,000 total customers—nor is the program extensive; the incentives will be shut off when enrollment reaches 2 MW of storage capacity or about 600 customers.

But a baby-step test is probably a wiser approach than attempting to force massive deployment. If the technology isn’t ready even at small scale, in terms of performance

or customer acceptance, a small test is the way to find that out. If it is, then it’ll be time to test whether the technology will scale up.

One other question to consider as decentralized energy storage and sharing becomes more of a thing: at what point do commercial ventures get incentivized to play along? (Green Mountain’s program is for residential customers only.) They’ve got acres of rooftop to be deployed for solar, as well as other systems (ventilation exhaust) that can be put to work producing energy; business participation could get utilities to their goals a lot faster and more efficiently than signing up individual residences.

Does this scenario sound familiar? A large commercial customer wants to do its own power purchases, relying on the local utility only for delivery services.

It should, since that was the arrangement Microsoft wanted with its incumbent utility, Puget Sound Energy, for its Redmond, Wash., office campus, back in 2016. More recently, it’s what retailer Walmart asked for 164 stores in Virginia served by Dominion Power and Appalachian Power.

Here’s where the stories diverge. The Washington UTC approved a deal between Microsoft and PSE that gave the software company freedom to buy power on its own, with the utility getting an exit fee.

The Virginia State Corporations Commission, on the other hand, just said no.

The commission ruled that Walmart’s departure from the two systems would shift costs to captive customers amounting to nearly \$70 million, and is not in the public interest.

Two items are of interest in the commission’s decision. One is that Virginia at one time had supplier choice for everyone. “We will not recount the history of that experiment in retail choice, but in 2007 the General Assembly and the Governor made the policy decision to terminate the experiment and return to the model of a vertically-integrated monopoly provider of both the wires function as well as electricity supply,” the ruling tersely notes. Carve-outs were reserved for single customers with more than 5 MW of demand, allowing them to go the third-party-supplier route, as well as for applicants that aggregated demand from multiple locations to reach that threshold. The latter, however, is at the commission’s discretion.

The other item of interest: the ruling notes that Virginia utility customers have already seen a decade of rate increases, and more are coming thanks to legislative mandates for “renewable generation, grid transformation, underground distribution, and energy efficiency spending.” Legislation will also shift costs of those mandates to residential and small-business customers, since there are provisions for discounts for manufacturers and other very large customers.

“If Walmart believes that the current statutory structure for setting vertically-integrated electric utility rates results in unreasonable or unnecessarily high rates, or that the public policy of Virginia should be to institute retail choice on a far more extensive scale than required under current law, its potential for recourse may be found

Continued on page 7

Price Report

Northwest Energy Prices Explode

Northwest energy prices sprang to record highs in Feb. 28 to March 7 trading, with Sumas natural gas above \$100/MMBtu and Mid-Columbia peak power values above \$900/MWh.

By all accounts, these were record prices, but analysts are wary of pointing to any single factor as having triggered the price jump. Natural gas constraints, cold-weather high demand and decreased hydro generation have all been implicated (see [11]).

Sumas natural gas gained \$136.11, or 540 percent, in a single day. The hub ended at \$161.30/MMBtu March 1. Intra-day trading was between \$125/MMBtu and \$200/MMBtu, according to the U.S. Energy Information Administration. In Thursday-to-Thursday trading, the hub lost \$18.31 to end at \$6.88/MMBtu.

Mid-Columbia and California-Oregon Border daytime power prices began their ascent March 1, spiking March 4 to \$964.90/MWh and \$400/MWh, respectively. By March 7, Mid-C ended at \$42.25/MWh, a drop of \$25.

Considering the varied market drivers, “These prices are just so high it’s hard really point to something that would justify that type of move,” Matt Hong, director of power and gas research for Morningstar Commodities, said of Mid-C prices.

The difference between a typical year (in the \$30 to \$40/MWh range) and a record year used to come down to hydro, “all else equal,” Hong said.

And even though there has been less hydro reported at BPA week over week, the “relationship between natural gas basis prices and power prices is so strong, a move like we’ve seen cannot really happen without higher natural gas prices,” he said. “Not only were natural gas prices high at Sumas, but Malin prices were also slightly higher this year than last year.”

Enbridge scheduled maintenance on its T-South natural gas system through March 6. Additional regional constraints resulted from compressor problems at the Jackson Prairie storage facility that hindered withdrawals.

Other Western natural gas hub prices generally moved lower by between 5 cents and as much as 57 cents. SoCal CityGate gained the most in Feb. 28 to March 7 trading, up 70 cents to \$5.87/MMBtu.

Western peak power prices trended lower by between \$3.65 and \$25 in Thursday-to-Thursday trading, but Palo Verde daytime values ended even at \$28.25/MWh. By March 7, prices ranged from \$28.25/MWh at Palo Verde to \$43/MWh at COB.

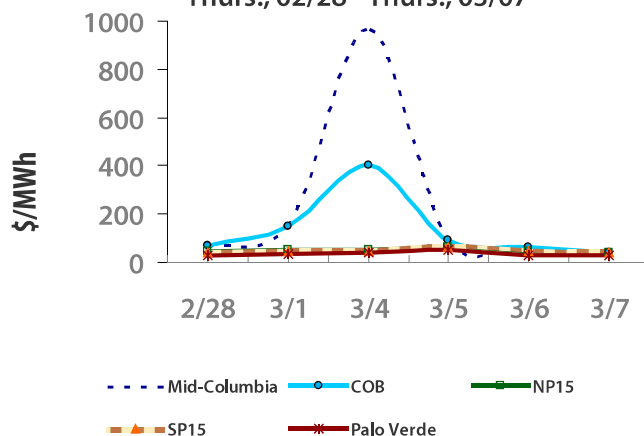
Off-peak power prices dropped between \$2.75 and as much as \$19.35. Mid-C lost the most, falling \$19.35 to \$42.35/MWh. Palo Verde added \$1.25 in trading to reach \$30.50/MWh.

California ISO demand reached 28,183 MW March 6, which should be the week’s high. Northwest Power Pool demand reached 64,172 MW March 4.

[Linda Dailey Paulson]

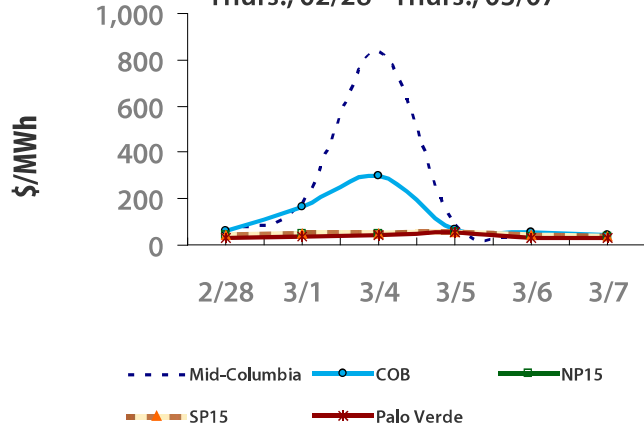
Average Peak Power Prices

Thurs., 02/28 - Thurs., 03/07



Average Off-Peak Prices

Thurs., 02/28 - Thurs., 03/07

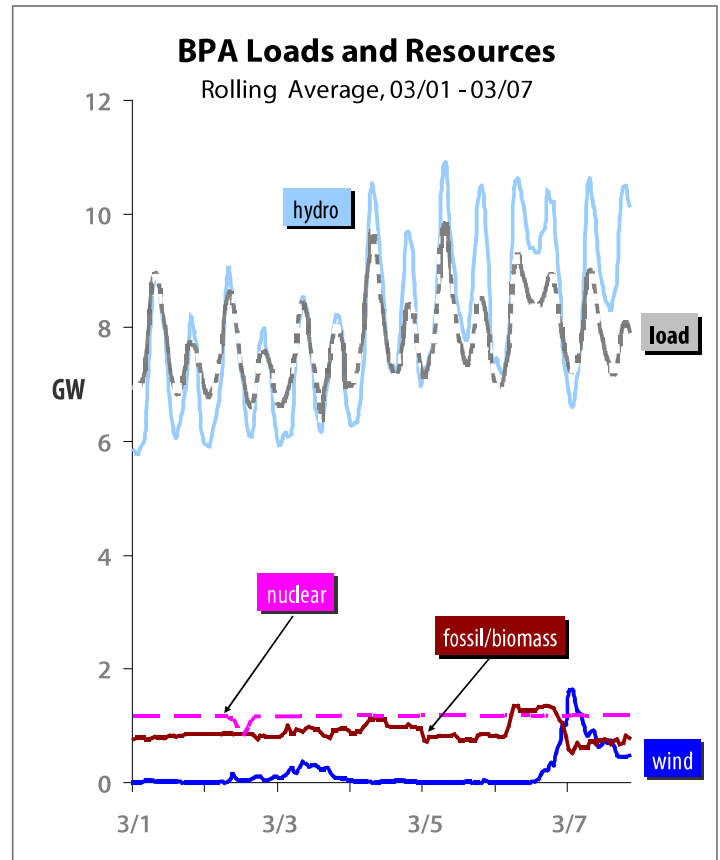
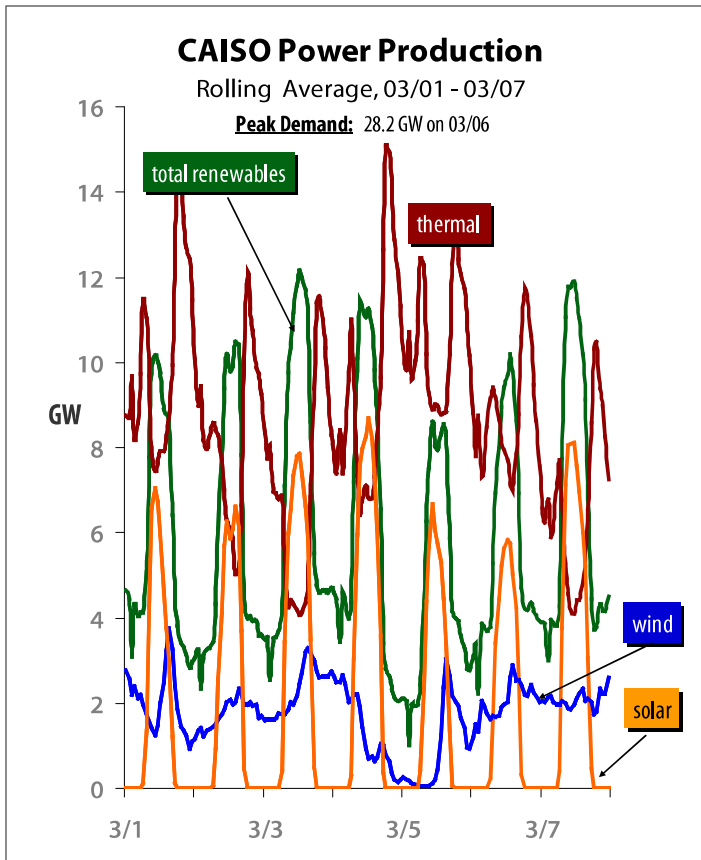


Average Natural Gas Prices (\$/MMBtu)

	Th., 02/28	Tue., 03/05	Th., 03/07
Henry Hub	2.93	3.12	2.92
Sumas	25.19	5.63	6.88
Alberta	2.60	2.22	2.20
Malin	4.10	3.42	3.56
Opal/Kern	3.97	3.31	3.54
Stanfield	4.13	3.55	3.56
PG&E CityGate	4.27	4.25	3.91
SoCal Border	3.79	3.67	3.67
SoCal CityGate	5.17	5.24	5.87
EP-Permian	1.14	1.85	1.34
EP-San Juan	2.69	3.02	2.64

Power/gas prices courtesy of Enerfax

Power Gauge



Sources: CAISO and BPA

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through the legislative process,” the commission [ruled](#).

Language like that ought to set ears tingling in the Northwest, where legislative mandates are coming fast and hard, especially in Washington’s current legislative session. The state has long comforted itself with the notion that cheap hydropower would protect it from stirrings of discontent among large-customer classes.

But the cost of electricity is going to go up, and the more and quicker it is driven up, the more business customers are going to look for ways to cut the bills, whether that means generating the power themselves or buying it from someone else.

Sometimes you peer out and you don’t see something you were hoping to, because it’s not there. In the past

we’ve mined Warren Buffett’s annual letter to Berkshire Hathaway shareholders for insights into the company’s large and growing portfolio of utility and energy holdings (including PacifiCorp).

Alas, this year the Sage of Omaha spends almost no time discussing that business. But there is a hint that while Buffett would like to make an “elephant-size” acquisition, whatever the industry, conditions aren’t right for that now. “In the years ahead, we hope to move much of our excess liquidity into businesses that Berkshire will permanently own. The immediate prospects for that, however, are not good: Prices are sky-high for businesses possessing decent long-term prospects.”

Wonder how Avista fits into those definitions.

[Bill Virgin]

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Supply & Demand

[11] NW Power Prices Soared, Driven by Low Temps and Pinched Supplies • from [1]

Cold temperatures and a tight energy supply pushed regional power prices on March 1 to levels that haven't been seen since the California energy crisis.

For the first time since 2000, prices at the Mid-C hit its price cap of \$1,000 per MWh, before leveling out at around \$800. Natural gas prices also set a single trade record and new high, as utilities brought natural gas-fired power plants on line.

The price spikes were driven by a variety of factors.

As traders were securing supply for a weekend with expected below-normal temperatures, they were doing so without about 1,000 MW of potential imports from California, as the DC Intertie was down for maintenance.

Production from the federal hydro system also couldn't ramp any higher, and was hamstrung by freezing temperatures that limited low inflows at Grand Coulee Dam.

Suzanne Cooper, VP for bulk marketing at BPA, told Clearing Up that the system was releasing some water to help chum salmon at Bonneville Dam, but was focused on holding water back.

"Right now the driver of system operations is fish requirements," Cooper said. "Frankly, if we didn't have chum operations we would have put less water out and we'd be holding that water to get ready for the spring operations."

BPA put out a [call for conservation](#) and gave a "must-run" order to the 1,200-MW Columbia Generating Station as supplies were squeezed.

"It was a bit of a scramble Friday morning,"

Tom DeBoer, assistant general manager of generation and power supply at Snohomish County PUD, told Clearing Up, adding that Snohomish's load was about 150 MW higher than forecast. "The pre-scheduled price hit \$1,000 per MWh and settled in at about \$800/MWh."

The last time Mid-Columbia spot prices were that high was in December 2000.

The Northwest's wind fleet was virtually idled as a high-pressure system settled over the region.

With imports limited, utilities turned to natural gas-fired generation to meet peak demand. But gas supplies were also pinched. Enbridge's Westcoast pipeline in British Columbia, which ruptured in October, was only operating at 85 percent (CU No. 1872 [12]) and draws from the Jackson Prairie storage facility were also scaled back due to compressor problems.

For a brief period, natural gas trades at Sumas were the most expensive in the nation and set a new Northwest record.

The highest single trade in North America on March 1 was a \$200/MMBtu transaction at Sumas, according to the National Gas Index (NGI). The previous record was \$175 in New York, set in January 2018.

Also, the Sumas average price on March 1 (Friday) for the Saturday to Monday period was \$152/MMBtu, beating the previous record of \$66.08/MMBtu set in November following the B.C. pipeline rupture. For Saturday-only flow, Sumas was trading at \$180/MMBtu, according to NGI.

Robert Cromwell, director of power contracts, regional affairs and strategic planning at Seattle City Light, said February was a month of extremes for the utility.

It was the coldest February since the 1940s, and the utility paid the highest market prices since the energy crisis of 2001, he said.

Power managers were quick to point out the irony of the Northwest leaning on natural gas during the cold snap as the Washington Legislature debated a 100-percent clean energy bill that would eliminate natural gas from the system by 2045.

"As a power supply guy, that just scares the heck out of me," Snohomish's DeBoer said.

The Northwest doesn't get many extended periods of cold weather, he added, but when it does, "you need a dispatchable resource. You have to have these [natural gas plants] around in case you have just these kinds of events. People should be paying attention to this."

Steve Kern, general manager of Cowlitz PUD, wondered how the region would have met demand without natural gas-fired generation.

"Don't tell me that you can just forget about natural gas. Look at what's happened in the last three to four weeks," he said. "We in the Northwest are dependent on natural gas to meet demand on these very cold days." *[Steve Ernst]*

[12] Avangrid Planning 150-MW Solar Project in Washington • from [2]

Avangrid Renewables plans to build a 150-MW solar project 8 miles southeast of Bickleton, Wash., in Klickitat County, through the county's Energy Overlay Zone process.

According to a county scoping [notice](#) issued in November, the Lund Hill photovoltaic facility includes 515,700 solar panels mounted on single-axis tracker systems. It will connect to the 230-kV transmission line of Avangrid's Juniper Canyon wind facility, which interconnects with the regional grid at BPA's Rock Creek substation, southwest of the project.

Avangrid spokesman Paul Copleman declined to name the customer for the array's output. He also noted that the company has dropped plans to include a 100-MW battery storage system also described in the scoping document.

The site, encompassing approximately 1,700 acres, is mostly on private land, but includes 480 acres owned by the Washington State Department of Natural Resources.

Commissioner of Public Lands Hilary Franz said in a March 6 release that DNR's 40-year agreement with Avangrid will be the first lease of state trust lands for solar power.

The DNR parcel will be leased for an annual fee of \$300 per acre on portions used for solar panels, which is more lucrative than the \$2 rate under its current use for cattle grazing, and will generate in excess of \$120,000 per year. Revenue from the land use goes to the Common School Trust held for school construction in the state.

"Solar power helps us take full advantage of the economic and ecological potential of our public lands," Franz said.

Avangrid anticipates Lund Hill will begin operations in late 2020, DNR said.

DNR spokesman Kenny Ocker told Clearing Up that there are 35 other state trust properties in eastern Washington leased at the grazing rate that have attracted interest from solar developers.

Solar development “represents a higher and better use of the land,” Ocker said.

Wind projects generating 200 MW on state trust land already contribute \$1.2 million each year to the school fund. Franz said the department’s goal is to produce 500 MW of solar power on public lands by 2025.

The project would dwarf the state’s current largest array in operation, the 28-MW Adams Nielson solar farm in Adams County. Completed in 2018, it’s owned by North Carolina-based Strata Solar, which sells the output to Avista for its Solar Select green tariff program (CU No. 1881 [10.5]).

However, it may not be as large as another solar development slated to enter service in 2020—TransAlta’s Tono solar project, proposed for the site of the company’s former Centralia coal mine in Thurston County (CU No. 1842 [11]). The company noted in a 2017 financial report that it was “considering various capacity scenarios between 40 to 180 MW.”

Also in the running for the state’s largest solar project is an eastern Washington development proposed for the second round of Puget Sound Energy’s “voluntary long term renewable energy purchase” program, also known as the Green Direct program.

PSE said in a release that the unidentified solar project, expected to be in service by 2021, will be “over 120 MW” in capacity, and noted in a Washington UTC [filing](#) that it has an expansion option with the developer for additional capacity [*UE-180851*].

Lund Hill is the fifth solar project Avangrid has announced for the Northwest in recent years, including two already on line in Oregon. The 56-MW Gala solar array near Prineville, completed in 2017, supplies power to Apple data centers there, and Portland General Electric buys output from the 10-MW Wy’East solar development completed in 2018 in Sherman County.

The company announced plans in 2018 to build two other solar arrays in Oregon, one supplementing its planned 404-MW Montague wind farm in Gilliam County, and the other the 303-MW Bakeoven project in Wasco County. Both would include up to 100 MW of battery storage to provide “as much flexibility as possible to meet an evolving market for clean energy products,” Copleman said.

Avangrid is currently building out 202 MW of the Montague wind project for Apple. [*Rick Adair*]

[13] Coal Plant’s New Owners Partner to Develop Cryptocurrency Hub • from [3]

Blockchain investors have thrown a lifeline to the Hardin Generating Station in Montana.

Developers announced plans March 1 to build a sprawling data center at the coal-fired plant, which will provide electricity for their endeavors.

Up until three months ago, Hardin looked headed for closure, done in by the sustained slump in wholesale power prices (CU No. 1828 [7]).

Then, in late December, FERC received an application to approve Heorot Power Holdings’ sale of the 120-MW nameplate capacity plant to Big Horn Datapower. FERC signed off on the transaction, which closed Feb. 27 [*EC19-41*].

In January, another entity, Big Country Datalec, petitioned FERC to market the Hardin plant’s energy, capacity and ancillary services [*ER19-784*].

Neither filing directly connects Big Horn Datapower and Big Country Datalec.

The plant’s direct owner, Rocky Mountain Power, is still overseeing the facility. It is unrelated to Berkshire Hathaway or PacifiCorp. RMP

acquired the plant in 2007 from MDU Resources Group. The plant was built by a subsidiary of MDU Resources Group and came on line in 2006 (CU No. 1150 [7.4]).

In 2012, RMP’s owner, Bicent Holdings, filed for bankruptcy. The plant and RMP were sold a few years later to Heorot Power, which then sold it to BDW, Big Horn Datapower’s subsidiary, in the latest transaction.

“We’re still managing the plant,” Gary Arneson, vice president of operations for Heorot Power, told Clearing Up over the phone. By press time, he had not responded to further questions sent via email.

Arneson is Heorot Power’s Hardin-based representative.

The plant’s value has plummeted since it came on line. According to public documents, its [value](#) went from \$268 million in 2009 to \$128 million in 2013 and \$23.3 million in 2016, the Billings Gazette reported.

The prolonged slump in wholesale energy prices hit Hardin hard. Since 2014, the plant has been losing money, Arneson said in letter sent to the Montana PSC in October 2017.

“We believe Hardin would be a valuable asset for an electricity distribution company or an industrial concern or consortium with a substantial electric load,” he said in the letter.

Big Horn River Technology is developing a massive cryptocurrency mining operation on 11 acres it is leasing at the Hardin plant. The development, dubbed the Big Horn Data Hub, will consume all of Hardin’s output, according to a March 1 press release from the tech company and RMP.

The developer is owned by CryptoWatt Mining, which opened a 60-MW cryptocurrency mining operation in Butte in 2018.

Construction is expected to cost \$55 million, and the project’s total cost—including computer servers and other expenses needed for mining cryptocurrency—is expected to be \$92 million, according to the release.

The plant’s owner has started paying on the more than \$2 million it [owes in taxes](#) to Big Horn County, according to the release.

Construction is slated to finish in June. When fully running, the site is expected to support 60 full-time jobs, according to the release.

‘We believe Hardin would be a valuable asset for an electricity distribution company!’

“This will not only preserve existing jobs, but create new, good-paying ones during construction and for the long term,” Montana Gov. Steve Bullock said in a statement. “I’m pleased we were able to work with the plant owners to team up with a Montana company and ensure continued economic viability in the region, benefitting folks both in rural and reservation communities.”

Power plant officials are in “ongoing discussions” with Westmoreland, which operates the Absaloka Mine that supplies the power plant, and the Crow Tribe, which owns the mine’s mineral rights. Westmoreland filed for

bankruptcy in late 2018. The plant’s owners and the developer did not reply to requests for comment from Clearing Up.

Big Horn River Technology has made “high-level inquiries” to NorthWestern Energy about connecting the data center to the grid, NWE spokeswoman Jo Dee Black said.

The development is a boon for the local community, Hardin Mayor Joe Purcell told Clearing Up. “The city of Hardin is excited and optimistic about the Big Horn Data Hub and the expected revenue and job opportunities it will bring to Hardin.” *[Dan Catchpole]*

Courts & Commissions

[14] Outside Investigators Clear Chelan PUD in 2018 Worker Death • from [6]

A design weakness in swing rails on a spillway gate was the root cause for a fatal accident in June at Chelan County PUD’s Rock Island Dam, according to an independent investigation commissioned by the utility and presented at the PUD’s March 5 commission meeting.

Longtime Chelan PUD worker Eddie Bromiley died after a swing rail at Gate 17 detached and struck him during a crane test.

The 40-year-old Bromiley and several other PUD employees and contractors were performing lift tests on several gates to gather data the district needed to order new fixed hoists for the dam. Bromiley was responsible for collecting the load data and spent much of the time during the tests leaning over his laptop, placed on a folding table that he moved from gate to gate, according to the report from Lane Powell, a Seattle-based law firm.

During the lift test at Gate 17, workers were looking down at the gate to ensure its two sections were both being raised. Three of the people present told investigators they suddenly heard “a very loud noise and a scream.”

With no warning, the north swing rail had come loose from its hinge assembly. Any noise they might have heard to warn them likely was lost in the rush of the water, the investigators note.

The 1,900-pound rail dropped straight down to the spillway deck, leaving a divot in the concrete. It tipped over, narrowly avoiding a contractor who rushed out of its path.

As the rail fell, one worker yelled, “Look out!” But he told investigators that he doubts Bromiley could have heard him in time. The rail struck Bromiley in the back of the head as he monitored the load data.

A coworker rushed to his side, and, likely in shock, lifted the 1,900-pound rail off Bromiley, the report says.

Despite his coworkers’ best efforts, Bromiley died at the scene.

Chelan PUD began installing swing rails at Rock Island Dam in the early 1990s. Gate 17 was converted to swing rails in 2017, and all gates had swing rails installed by November of that year.

The investigation could not determine the origin of the rails’ design. The investigators’ engineering consultant,

Tetra Tech, found that the Rock Island Dam rails are “without design precedence,” the report states.

A PUD employee raised safety concerns with the swing rails’ design in the mid-1990s, when they were installed at the dam. However, those concerns were not documented or adequately disseminated, so no one involved in the accident “had ever previously—directly or indirectly—been made aware of such concerns,” the investigators concluded.

“We were not ultimately able to pinpoint conclusively the precise mechanical cause of the swing rail lifting, becoming detached and falling,” the report says.

However, the “most probable explanation for the swing rail becoming detached and falling” was a “slight rotation” of one of the 200-ton Gantry Crane 3’s hoist blocks, during a test lift of Gate 17’s hooks, it says.

The “slight rotation” caused the hoist block to catch “what is believed to have been the horizontally misaligned bottom edge of the north ‘swing rail’,” the report continues.

That, in turn, lifted “the rail until it became dislodged from its upper and lower hinge assemblies, falling to the spillway deck,” it concludes.

None of this action would have been visible to workers until it was too late, Tetra Tech’s analysis, submitted with the report, concluded.

Investigators interviewed 25 district workers, but did not interview two of the seven eyewitnesses to the fatal accident. The two worked for PUD contractor Eureka Engineering Enterprises, whose attorneys imposed “ill-advised” conditions, according to the report.

The report made several recommendations to Chelan PUD, including a handful of engineering issues and two procedural improvements. These include modifying the spillway design; changes to crane lift procedures; and ensuring safety concerns are adequately documented and disseminated.

“The PUD has committed to fully implementing all five recommendations,” Chelan PUD spokeswoman Kimberlee Craig wrote in a March 5 post on the district’s website.

In late November, Washington’s Labor and Industries fined the PUD \$6,000 for three violations related to the fatal accident. Two violations were deemed to be serious but not due to willful negligence, the most severe level of violation. The third violation was considered to be general. *[Dan Catchpole]*

Environment



Fish

[15] Public Urges Wash. to 'Stand Strong' on EPA Water Certs • from [4]

Dozens of comments from the public and environmental groups ask the Washington Department of Ecology to exercise its authority under the Clean Water Act to address rising water temperatures in the Snake and Columbia rivers caused by dams and climate change.

The comments—many focusing on the need to recover salmon to help orcas, and some asking to remove the lower Snake River dams—continued to be submitted even after the EPA withdrew its request for water quality certifications at nine federal dams in the basin on Feb. 1 (CU No. 1888 [15]).

Ecology signaled it intends to use this unusual authority to issue or deny Section 401 Water Quality Certifications for the federal dams under the Clean Water Act, emphasizing that in bold in a Feb. 28 letter to the EPA. “This letter **shall not** be considered a waiver of Washington State’s Section 401 certification authority,” it reads in part. If EPA decides to move forward with the withdrawn permits, “this letter is a denial of the Section 401 certification you requested.”

The letter also tells the EPA it would value a timeline for when a new request for the water quality certification will be submitted, and notes that Ecology plans to provide a new public comment period once a new request is received. “We interpret from your verbal communications with us that completing this work is a priority for EPA,” the letter adds.

EPA’s request for state-issued water quality certification for the nine dams—including the four lower Snake River dams, four lower Columbia River dams and Grand Coulee Dam—came about as the result of a lawsuit settlement between the U.S. Army Corps of Engineers and Columbia Riverkeeper. The EPA is in charge of issuing National Pollution Discharge Elimination System permits agreed to in the settlement, and the water quality certification is needed as part of those permits.

In September and October, EPA requested that certification from Ecology, and then withdrew its request on Feb. 1. The agency’s reasons for withdrawing were clarified in a Feb. 15 letter from EPA to Ecology, which states, “The EPA determined that the permits require additional internal review and therefore withdrew the requests for water quality certification at this time. We fully intend to request CWA Section 401 certifications from Washington Department of Ecology after completing the internal review and updating the preliminary draft permits.”

But Ecology was already seeking public comment on EPA’s initial request, and despite the withdrawal, kept its comment period open through Feb. 19.

As noted in Ecology’s letter to the EPA, “The majority of comments focus on the importance of ensuring all discharges from the dams meet state surface water quality standards. In particular, temperature was

raised as a key concern to address, due to the importance of temperature in protecting and rebuilding salmon populations in the Columbia Basin and in achieving our state’s recovery goals for salmon and Southern resident orca recovery.”

Those [comments](#) are now available to the public. They include a few dozen from individuals, a handful from nonprofit groups, and one from Columbia Riverkeeper with 824 letters from individuals, many of them a variation of a form letter.

Some received later in the comment period expressed disappointment that EPA had withdrawn its request, and urged Ecology to “stand strong,” or “stand firm” in its authority to require adherence to water temperature standards.

The letters sent by Riverkeeper say that climate change and dams combine to warm the Columbia and Snake rivers to unsafe levels, that salmon have difficulty migrating upstream when water temperatures exceed 68 degrees for several days at a time, and that those conditions are happening with increasing frequency due to climate change.

“Washington can require the Trump administration’s EPA to protect the Columbia River’s water quality and fisheries from the impacts of federal dams,” the letters state, and conclude, “More than one third of the salmon and steelhead populations in the Columbia Basin vanished during the last century. With your leadership, Washington can help struggling Columbia River salmon runs—and the orcas they sustain.”

A comment from the Natural Resources Defense Council says that scientists estimate the Columbia and Snake river water temperatures increase in early fall by an average of 6.3 degrees as a result of impoundment. It notes that Washington’s current water quality standard is for a one-day maximum temperature of 68 degrees Fahrenheit.

“The violation of that standard is well documented, and the federal government has openly recognized that the largest contributor to the problem is the dams,” NRDC stated. “However, this water quality standard has never been enforced at the federal dams.”

The group also notes that salmon stop their upstream migration when river temperatures hit 72 or 73 degrees, and that fish ladders in particular create stress because of temperature differences due to water coming in from different depths.

Representing 17 organizations, the Orca-Salmon Alliance called it a “temperature crisis on the Snake and Columbia rivers,” and wrote that warmer water holds less oxygen, which can cause salmon to have less energy for spawning and lower resistance to disease or ability to escape from predators.

The Alliance also noted that the Fourth National Climate Assessment projects salmon could lose 22 percent of their habitat in Washington state due to warming rivers.

The group’s letter did not call for removing Snake River dams as a way to address temperature problems, but more than a dozen individual comments from the public did.

A few individual comments defended the dams. One said that applying the state standard to the federal dams will not work when the water temperature is already too high when it reaches the dams. It says that removing dams would not cool the water that's already too warm above them, but would add millions of tons of CO2 to the atmosphere. The comment suggested more realistic measures such as planting shade trees and ceasing harvest.

Another individual attached documents with water temperatures in the lower Snake River from the 1950s—before the dams were built—showing that temperatures from every year collected exceeded the 68-degree threshold, and reports from the late 1800s also showing temperature exceedances of the state standards. The comment asked Ecology to give the historical data some consideration and credence. *[K.C. Mehaffey]*

[16] BPA Supports Steelhead Reconditioning Facility to Boost B-Run • from [5]

Columbia Basin tribes have been working for 20 years to capitalize on steelhead's mystifying ability to repeat spawn, and recently got BPA's [final recommendation](#) to build a new reconditioning facility to boost the Snake River's famous B-run steelhead returns.

Repeat spawning is an odd little survival technique that only steelhead possess, of all the anadromous fish in the Columbia Basin.

The reconditioning facility is for kelts, steelhead that have already spawned and are on their way back to the ocean to feed, remature and gather strength for another return to their spawning grounds. But few make it back.

After years of research to develop the best methods to boost those returns, the tribes have been catching these post-spawn adults at juvenile bypass systems, holding and feeding them until they remature, and releasing them back in the river to spawn in the wild again.

The Columbia River Inter-Tribal Fish Commission and the Nez Perce Tribe believe that giving Snake River steelhead a second shot at spawning is one way to help increase the numbers of the larger B-run fish.

"Our research has shown that when they do spawn again, they're larger, and they produce more eggs and larger eggs, which is associated with better survival," Doug Hatch, a senior fisheries scientist for CRITFC, told Clearing Up.

At an estimated cost of roughly \$2 million, the facility to recondition Snake River kelts still needs a preliminary design and an operation and maintenance plan before CRITFC returns to the Northwest Power and Conservation Council for final approval. Construction of the facility, as part of the Nez Perce Tribal Hatchery near Lewiston, Idaho, should begin next year.

Their goal, once it's built, is to increase ladder counts of B-run steelhead passing Lower Granite Dam each year by 6 percent—an extra 180 adult females—released and ready to spawn again, Hatch said. According to BPA's environmental analysis of the project, "A kelt reconditioning program in the Snake River Basin is believed to be critical for increasing the returns of these fish to this level."

Idaho is well-known for its steelhead fishing, especially its B-run, which mostly return to the

Clearwater River and are generally larger and come back later after spending two years in the ocean, compared to the A-run steelhead that return after one year.

Fish managers and others have been concerned about recent low returns of these larger steelhead (CU No. 1866 [11]). Last year, conservation groups threatened to sue the Idaho Department of Fish and Game to stop the harvest of hatchery steelhead until the agency promised tighter controls on steelhead fishing, and applied for an incidental take permit of wild steelhead from federal agencies (CU No. 1873 [7.6]).

Programs to recover the Columbia Basin's declining steelhead runs have included limits on fishing, restoring habitat, improving passage at hydroelectric dams, and developing hatchery programs. Currently, only the tribes are attempting to improve runs by boosting the number of repeat spawners. "It's a novel approach, and I think it has a lot of promise—particularly when the runs get into these low status positions," Hatch said.

He said that the return rates for repeat spawners vary. In the Yakima River, repeat spawners make up about 3 percent of the adult steelhead run, while in the Snake River, kelts returning to spawn a second time account for only about 1 percent. Partly because return kelts are so rare, the reconditioning program has the potential to vastly improve repeat spawning in the Snake River, he said.

In a 2016 [letter](#) to the NWPCC, the Fish Commission noted, "Based on the 1-percent return rate in the Snake River, collecting and reconditioning kelt can provide over 100 times greater benefit to the population in terms of fish

on the spawning grounds than their potential contribution as natural repeat spawners. Kelt reconditioning not only increases spawners on the spawning grounds, it plays an important role in the spread-the-risk strategy for steelhead; it helps to preserve the diversity of life history pathways in steelhead and can be used as a restoration tool for at-risk steelhead populations."

Hatch said that, historically, more steelhead returned to the Columbia River and its tributaries to spawn a second time, but downstream passage at hydroelectric dams is designed for juvenile fish, making it difficult for adult steelhead to return to the ocean and attempt another return. "The passage facilities are making improvements, but they were never envisioned to pass adult fish. They have small piping, which cause problems for the adults," he noted.

In 1999, CRITFC and the Yakama Nation began looking into methods to recondition steelhead in the Yakima River, to see if they could get kelts to remature and rebuild their strength without making a return trip to the ocean (CU No. 1760 [17]).

Over time, the tribes developed a successful method that involves capturing adult steelhead as they migrate downstream after spring spawning and transporting them to a reconditioning facility.

While held, they are fed a diverse diet that includes krill and squid, and are treated with antibiotics to help

'The passage facilities are making improvements, but they were never envisioned to pass adult fish.'

rebuild their immune systems. Some are held for about six months, until October, and then released into the stream where they were collected as the new steelhead run is returning. Those that do not remature in six months are held for 18 months before they are ready to be released, Hatch said.

The reconditioned fish—both at six months and 18 months—do not go to the ocean because they've already rematured before they're released, and instead join the run as it heads to its natal spawning grounds to lay eggs, Hatch said.

The program in the Yakima River was so successful, similar programs have been developed by Colville, Warm Springs and Nez Perce tribes in the Methow, Okanogan, Hood, Deschutes and now Clearwater basins.

Hatch noted that while the reconditioning generally occurs in a hatchery, the program is different from conventional hatchery programs. "These are wild fish that we're bringing into the facility. They've already spawned, and we recondition them and put them back out into the run at large," he said. "You're increasing the natural run with natural fish. There's a lot of upside, and not very much downside."

More recently, researchers have been working to determine which fish will require a full 18 months—known as skip spawners—and which will be ready to spawn again after just six months.

Hatch said that in nature, these skip spawners are more likely to occur in years when conditions were difficult for adult migration, whereas consecutive spawners happen when they've completed spawning and are still in relatively good condition. "It does vary annually, but it also varies by location. In the Snake, we do see higher rates of skip spawners than in the Yakima," he noted.

He said it's more cost-effective to recondition those that take only six months. But, he added, "There are tradeoffs because skip spawners are even larger, so you have even more eggs and bigger eggs, so there are some advantages."

The Columbia Basin tribes have been at the forefront of the research and are currently the only fish managers with kelt reconditioning programs, but Hatch believes that may change. "I think as the steelhead populations continue to go down—the most recent forecasts look pretty bleak—this becomes even more important, and there may be greater interest by others," he said. *[K.C. Mehaffey]*

Clearing It Up

[17] NW Natural Reports Flat Adjusted Net Earnings in 2018 • from [7]

NW Natural Holdings on March 1 reported net earnings of \$64.6 million, or \$2.24 per share, for 2018, up from a net loss in 2017 of \$55.6 million or \$1.93/share—although the adjusted 2017 earnings were \$64.5 million, or \$2.24/share.

The adjustment reflects the 2017 impairment of the Gill Ranch gas storage facility (CU No. 1857 [20]), partially offset by a benefit from the implementation of federal tax reform legislation.

Net income from continuing operations was \$67.3 million or \$2.33/share for 2018, compared to continuing operations in 2017 of \$72.1 million or \$2.51/share.

Excluding the non-cash benefit from tax reform legislation, adjusted net income from continuing operations for 2017 was \$68.7 million, or \$2.39/share.

The year-over-year decrease in adjusted earnings from continuing operations is related to the effects of warmer weather in 2018, higher operations and maintenance costs, and increased depreciation expense from investments in the company's natural gas system.

Mitigating the decreased earnings was a \$2.7-million increase in asset management revenues in 2018 from optimizing the non-utility portion of the Mist gas storage facility and natural gas transportation capacity during the Enbridge pipeline rupture in October that disrupted Northwest supplies (CU No. 1872 [12]).

For the fourth quarter of 2018, the company reported net income of \$35.8 million, or \$1.24 per share, compared to adjusted net income in 2017 of \$29.9 million, or \$1.04 per share, representing a \$5.9-million, 20 cents/share increase compared to 2017.

Net income from continuing operations were \$36.8 million, or \$1.27/share in 2018, compared to adjusted net income in 2017 of \$31.1 million or \$1.08/share.

The company initiated 2019 earnings guidance in the range of \$2.25 to \$2.45 per share from continuing operations.

"**This past year**, we continued to execute on our long-term strategy, maximizing returns from our strong, stable and growing regulated natural gas utility and diversifying our business with investments in the water sector," David Anderson, president and CEO, said in an earnings call. "Despite warmer weather last year, we saw higher revenues from strong customer growth and new utility rates here in Oregon, offset by some higher operating costs."

The customer growth in the year amounted to a 1.7-percent growth rate, from adding more than 12,500 natural gas meters in the last 12 months.

NW Natural entered a settlement agreement in February on the remaining items in its 2018 Oregon general rate case (CU No. 1890 [11]), and in December filed its first Washington general rate case in a decade, asking for a 7.2-percent rate increase, offset by 2.4 percent in the first two years from the benefits of federal tax reform.

Washington, which represents about 11 percent of the utility's customers, is its fastest-growing service territory. The Washington UTC has 11 months to review the case; NWN requested that new rates be effective Dec. 1.

Anderson said its 2.5-billion cubic-foot North Mist expansion project is expected to be in service sometime in spring, after facility construction is finished.

The project will provide long-term, no-notice underground gas storage service for Portland General Electric's Port Westward peaking plant, principally for firming wind generation.

Delays in constructing the compressor station pushed the start of operations by a quarter, and increased the estimated project costs from \$135 million to \$144 million (CU No. 1876 [18]), and then to the current \$149-million estimate.

The expansion project investment will be included in the base rate through a tariff for its use, under an initial 30-year service contract with PGE with options to extend it up to 50 years more.

In addition to its natural gas business, the company had pending and closed water acquisitions in 2018 totaling nearly \$70 million that will serve approximately 45,000 people through 18,000 connections.

The Oregon PUC is expected to rule by June on its largest pending deal, in Sunriver, Ore. (CU No. 1874 [9.5]).

“Through our water acquisitions, we are adding an earnings stream that has a similar low-risk and strong cash flow profile as our regulated natural gas utility company,” Anderson said during the earnings call.

“I believe the water sector has tremendous investment potential in the coming years, as aging infrastructure will need to be replaced, and I know that we can provide value to this industry,” he added. *[Rick Adair]*

[18] POTOMAC: Proposed Offshore Leasing Plan Due in ‘Weeks’ from [8]

A proposed 2019-2024 offshore oil and natural gas leasing program is likely to be released for public comment “in the coming weeks,” the Bureau of Ocean Energy Management’s acting chief told a House subcommittee on March 6.

Walter Cruickshank, the bureau’s acting director, said final decisions on which offshore regions would be proposed for leasing would be left to Acting Interior Secretary David Bernhardt. Cruickshank testified to the House Natural Resources Committee’s Energy and Mineral Resources Subcommittee.

Cruickshank added that the proposal would be released for 90 days of public comments.

In response to questions from Rep. Jared Huffman (D-Calif.), Cruickshank said public input is one of eight factors determining which areas would be proposed for leasing. Huffman said he is not aware of any California state or local officials who support new leases off the state’s coast.

A draft 2019-2024 drilling program released in January 2018 called for 47 possible lease sales in 25 of 26 offshore regions, including the West Coast. The governors of California, Oregon and Washington oppose new Pacific Coast leasing.

Rep. Paul Gosar (R-Ariz.), the subcommittee’s ranking Republican, said offshore oil and gas revenues feed the Land and Water Conservation Fund. Money for coastal restoration would dry up without offshore oil and gas production, Gosar said.

DOE Hit on Standards Pace

The Department of Energy is late on updating 16 appliance efficiency standards, and its proposed “process rule” would stall new standards, House Democrats charged at a March 7 subcommittee hearing.

Lawmakers and witnesses also took issue with DOE’s proposal to drop expansion of efficiency standards to specialty lighting types, including reflectors and globe-shaped lamps.

As of January, DOE had missed statutory deadlines for completing standards for a range of residential and commercial lighting and appliance products, including clothes washers and dryers, refrigerators, water heaters and small electric motors, according to the Appliance Standards Awareness Project, an efficiency advocacy organization.

Daniel Simmons, DOE’s assistant secretary for efficiency and renewables, said “probably not” when asked whether the standards would be completed in six months. He testified before the House Energy and Commerce Committee’s Energy Subcommittee.

Rep. Frank Pallone (D-N.J.), the full committee’s chairman, said “it’s a clear indication there’s not a serious effort” to finish the standards.

Simmons said the 1975 Energy Policy and Conservation Act requires standards to be technically feasible and economically justified, which he suggested complicates compliance with statutory deadlines.

Joseph McGuire, CEO of the Association of Home Appliance Manufacturers, called for revising the 1975 law to fix what he called a “disconnect” between requirements to revisit standards every six years and test procedures for measuring product performance every seven years.

Simmons also defended the proposed process rule, which would set a minimum threshold of 0.5 quad of projected energy savings over 30 years or a 10-percent efficiency improvement before new or revised standards could be considered.

Simmons said 60 percent of 57 rulemakings carried out since 1989 delivered 96 percent of all standards issued since that year.

David Friedman, advocacy vice president for Consumer Reports, testified that the proposal “is out of touch with the changing consumer marketplace.” Friedman added that the rule would “add more burdensome processes, tests and complications” to standards development.

Faster Action Urged on EMP, GMD Risks

Faster action is needed to harden the electric power grid against electromagnetic pulse and geomagnetic disturbance risks, the chairman of the Senate Homeland Security Committee said at a Feb. 27 roundtable with federal, industry and academic witnesses.

“What have we done besides literally admire the problem?” Sen. Ron Johnson (R-Wisc.), the committee chairman, said. Johnson said the scale of EMP dangers to the grid from high-altitude nuclear detonations has been known since the 1960s. He added that the risks of solar storms setting off geomagnetic disturbances have been known since the Carrington event in 1859, which disrupted telegraph systems throughout North America and Europe.

George Baker, a James Madison University professor who developed standards to harden military facilities against EMP, said FERC’s GMD standards are not strong enough to protect the grid. He called for legislation giving the agency direct authority to draft and enforce standards.

Johnson suggested that utilities move to harden their systems using military specifications.

Utility witnesses, however, said “mil spec” engineering wasn’t designed for utility systems and could result in unintended consequences.

“You can’t assume something and throw it out there, because I don’t want to collapse the grid in the process,” David Roop, transmission and reliability director for Dominion Energy, responded.

Under current federal law, NERC drafts standards for FERC approval. Joseph McClelland, FERC’s director of energy infrastructure security, said “it takes years to develop a standard. It’s too open. Our adversaries can read standards and design around them as quickly as standards are put in place.”

McClelland added, however, that in addition to “baseline” standards, FERC encourages industry to adopt “best practices” at key points on the grid “which may be enough to dissuade adversarial action.”

On GMD, Justin Kasper, a University of Michigan professor of space, science and engineering, suggested that major solar storms akin to the Carrington event might happen more frequently than earlier thought.

Caitlin Durkovich, a former assistant secretary for infrastructure protection at the Department of Homeland Security, said the Earth in 2012 narrowly missed “a major disruptive solar event” comparable to the Carrington storm. “It is believed if the storm had occurred one week earlier, Earth would have been in the line of fire,” she said.

Hardening the electric power grid would be insufficient unless other infrastructure on which utilities depend also is hardened, said Scott Aaronson, the Edison Electric Institute’s vice president for security and preparedness.

“If we don’t have water, we can’t generate steam or cool systems. If we don’t have telecommunications, we can’t operate. If we don’t have transportation or pipelines, we can’t move fuel,” Aaronson noted.

Military, Security Leaders Denounce Climate Panel

Nearly five dozen retired security and military leaders, including two Cabinet secretaries, warned the White House March 5 against reported plans to convene a panel to question the National Climate Assessment and other studies spotlighting climate-change risks.

Former Secretary of State John Kerry and former Defense Secretary Chuck Hagel were among 58 former officials and retired high-ranking military officers who sent a letter to President Donald Trump to “drop the politics and allow our national security and science agencies to do their jobs.”

The letter, also signed by former NASA Administrator Richard Truly and Gen. Gordon Sullivan, retired Army chief of staff, said “we are deeply concerned by reports that National Security Council officials are considering forming a committee to dispute and undermine military and intelligence judgments on the threat posed by climate change.”

The letter said “imposing a political test on reports issued by the science agencies and forcing a blind spot onto the national-security assessments that depend on them, will erode our national security.”

Meanwhile, top Senate Democrats introduced legislation on March 7 to block funding for any federal

panel “intended to challenge the scientific consensus on climate change.” The legislation was introduced by Minority Leader Charles Schumer (D-N.Y.) and Sens. Tom Carper (D-Del.), ranking Democrat on the Environment and Public Works Committee, and Jack Reed (D-R.I.), top Democrat on the Armed Services Committee.

Oregon Lawmakers Back Youths in Climate Case

Four Oregon congressional Democrats filed a friend-of-the-court brief March 1 to support teens and young adults who have sued seeking a court order to phase out greenhouse gas emissions from fossil-energy use.

Sens. Ron Wyden and Jeff Merkley, along with Reps. Peter DeFazio and Earl Blumenauer, filed a brief with the 9th U.S. Circuit Court of Appeals urging judges to allow the case to go to trial. The Trump administration has filed a series of petitions seeking to block a trial.

Other members of Congress on the brief were Reps. Debra Haaland (D-N.M.) and Rashida Tlaib (D-Mich.) and Sen. Sheldon Whitehouse (D-R.I.).

The suit, filed in 2015 by 21 youths and young adults, seeks a court order forcing the federal government to adopt a plan for phasing out fossil-fuel emissions and reducing carbon dioxide levels in the atmosphere. Plaintiffs argue that federal agencies have ignored climate-change dangers in allowing production and use of fossil fuels, infringing their rights to life, liberty and property.

Republicans Named to Climate Committee

House Minority Leader Kevin McCarthy (R-Calif.) named six Republicans on Feb. 28 to the House Select Committee on the Climate Crisis.

The lead Republican on the committee is Rep. Garret Graves (R-La.), whom the Environmental Defense Fund said “recognizes the established science of climate change.” Graves represents a district where rising sea levels and coastal erosion are top issues.

McCarthy did not name any Westerners to the panel. Other appointees were Reps. Morgan Griffith (R-Va.), Carol Miller (R-W.Va.), Gary Palmer (R-Ala.), Buddy Carter (R-Ga.), and Kelly Armstrong (R-N.D.).

The committee, chaired by Rep. Kathy Castor (D-Fla.), can hold hearings on climate issues but does not have authority to report legislation to the House floor.

Bill to Speed LNG Projects Floated

Legislation aimed at speeding FERC permitting of LNG terminals and other infrastructure projects has been introduced in both houses of Congress.

The bills would authorize FERC’s chairman to bypass federal personnel requirements to adjust the pay scales for engineers needed for reviewing permit applications.

Bill sponsors said FERC has trouble competing with the private sector to hire technical experts.

“Our bill would give FERC the ability to hire more people with the right technical expertise to streamline this [review] process and make timely decisions,” Sen. Lisa Murkowski (R-Alaska), chairwoman of the Senate Energy and Natural Resources Committee, said.

Murkowski is co-sponsoring S. 607 along with Sens. Cory Gardner (R-Colo.) and Bill Cassidy (R-La.). Similar legislation in the House, HR 1426, was introduced by Reps. Mike Doyle (D-Pa.) and Pete Olson (R-Texas).

Wyden Calls for Revamping Energy Taxes

Sen. Ron Wyden (D-Ore.) on March 5 renewed a call for “technology neutral” energy tax policy aimed at reaching emissions-reduction and energy-efficiency goals.

Wyden spoke at a Senate Energy and Natural Resources Committee hearing focused on climate change and the electricity sector.

Wyden called for eliminating dozens of current energy tax preferences, many of which “subsidize the dirty energy relics of yesteryear. I’ve proposed throwing them in the trash can.”

Lisa Jacobson, president of the Business Council for Sustainable Energy, said technology-neutral policy would “enable a long-term investment pathway incentivized by the tax code to support the types of investments that Congress is seeking. By putting it on a longer time frame and setting a common metric, we’re moving away from the uneven policies that we’ve had before that hit different businesses in different industries in different ways.”

In the 115th Congress, Wyden sponsored legislation authorizing production and investment tax credits for power generation that emits at least 35 percent less carbon dioxide than the national average.

The bill also would have authorized credits for residential retrofits that beat the 2015 International Energy Conservation Code baseline by at least 25 percent. The legislation included a deduction for commercial retrofits that beat the ASHRAE 90.1-2016 standard by at least 25 percent.

In other testimony, energy consultant Susan Tierney said lower electricity demand, substitution of natural gas for coal, and renewables development reduced the electricity sector’s CO2 emissions nearly 42 percent below what emissions would have totaled had there been annual demand growth of 2 percent from 2005 and had carbon intensity remained at 2005 levels.

DOE Nominees Advance

The Senate Energy and Natural Resources Committee on March 7 reported out four nominees for top positions at DOE.

The committee reported out Rita Baranwal to serve as assistant secretary for nuclear energy; Lane Genatowski to head the Advanced Research Projects Agency-Energy; Christopher Fall as director of the Office of Science; and William Cooper to serve as general counsel.

EPA Says Vehicle GHG Performance Improving

Model year 2017 automotive greenhouse gas emissions fell to 357 grams per mile, the lowest level ever, the Environmental Protection Agency said March 6.

In a report on vehicle fuel-economy and emissions trends, EPA said tailpipe GHG emissions have decreased 23 percent since 2004, and that model year 2018 emissions are projected to drop to 348 grams per mile.

Agency Administrator Andrew Wheeler said, however, that “there are legitimate concerns about the ability to cost-effectively achieve the Obama administration’s standards in the near future.”

EPA has proposed freezing standards for tailpipe GHG emissions and fuel-economy at 2020 levels for six years. In addition, the agency has proposed blocking California from setting its own standards.

The plan, if finalized, is likely to face a court challenge from California and states that, under the Clean Air Act, enforce California tailpipe standards.

Panel Hears Call to Keep EV Credit

Retention of electric-vehicle purchase and charging credits is needed to overcome barriers to more widespread use of EVs, an electrification advocacy group told a House committee Feb. 26.

Ben Prochazka, vice president of the Electrification Coalition, called for retaining the federal credit of up to \$7,500 for buying new EVs, but added that the 200,000-vehicle cap per manufacturer “does not align industry incentives with factors such as early adoption or rapid technological advancement.”

He testified at a House Transportation and Infrastructure Committee hearing on infrastructure development and climate change.

Prochazka also called on Congress to retain the credit for installing charging infrastructure, valued at up to \$1,000 for homes and \$30,000 for commercial facilities.

Sen. John Barrasso (R-Wyo.), chairman of the Senate Environment and Public Works Committee, has proposed legislation to repeal the tax credit for buying EVs and to collect a highway user fee on EVs and fuel-cell vehicles through income tax returns. *[Jim DiPeso]*